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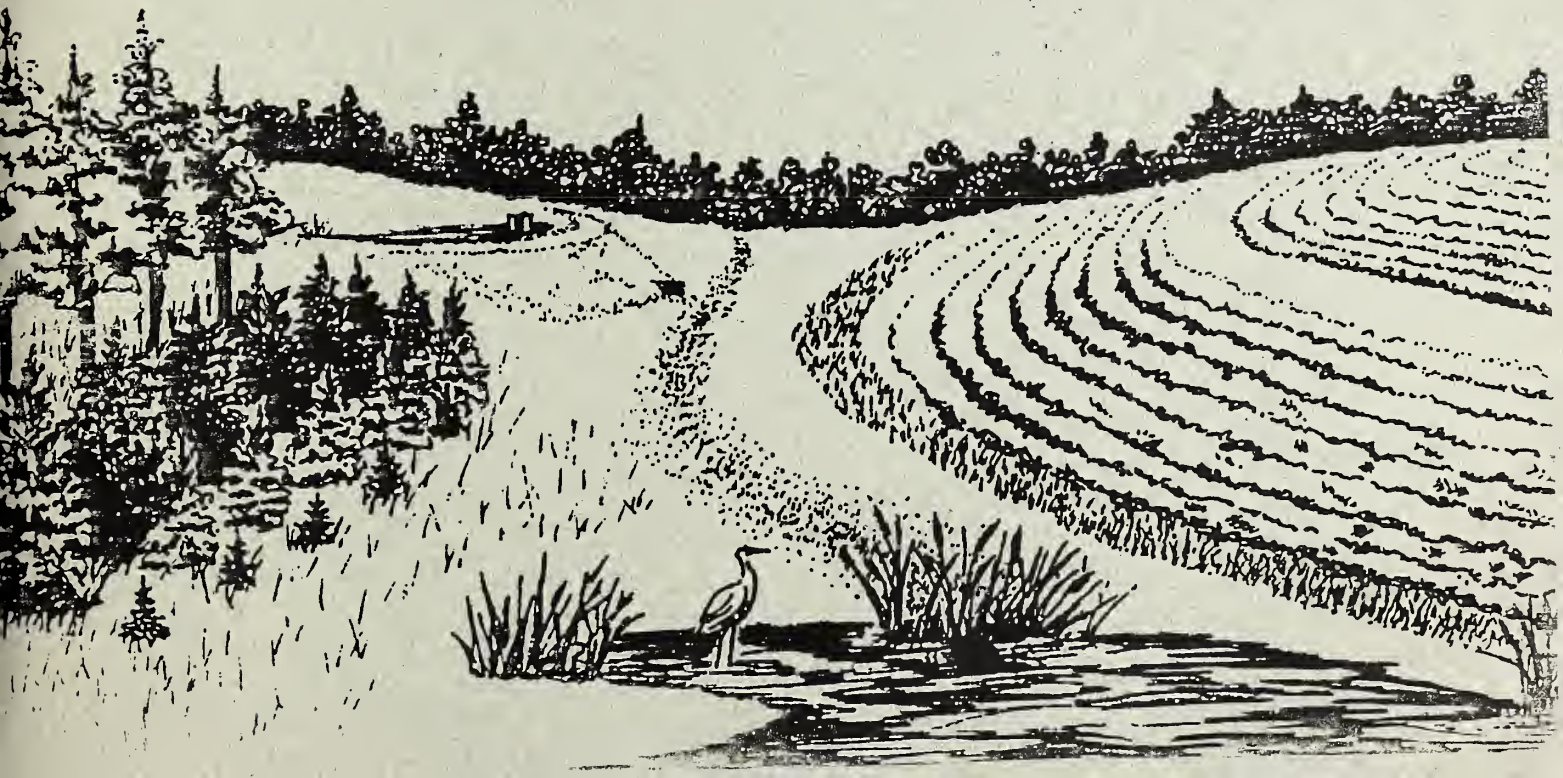
Soil
Conservation
Service

Jamie L. Whitten Plant Materials Center

Coffeeville, Mississippi

Report of Activities – 1991



Jamie L. Whitten Plant Materials Center

Coffeeville, Mississippi

Report of Activities – 1991

Including Field Activities in Arkansas, Louisiana and Mississippi

STAFF

David M. Lane	Manager
Joseph A. Snider	Assistant Manager
B. B. Billingsley, Jr.	Leader, Special Projects
Luther H. Bloodworth, Jr.	Conservation Agronomist
Janet M. Grabowski	Biologist
William D. Benoist	Biological Technician
Laura T. Mason	Secretary
Jimmie Miller	Tractor Driver

Plant Materials Specialist

W. Curtis Sharp, NHQ, Washington, DC
H. Wayne Everett, SNTC, Ft. Worth, TX
James A. Wolfe, AR-MS, Coffeeville, MS

State Conservationists' Advisory Committee

L. Pete Heard, MS, Chairman

Ronnie D. Murphy, AR

Horace J. Austin, LA

Jerry S. Lee, TN

Artwork by Dean Foster, SCS, Civil Engineering Technician, Jackson, MS

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REPORT OF ACTIVITIES - 1991
JAMIE L. WHITTEN PLANT MATERIALS CENTER
Coffeeville, Mississippi

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REPORT OF ACTIVITIES - 1991

JAMIE L. WHITTEN PLANT MATERIALS CENTER
COFFEEVILLE, MISSISSIPPI

INTRODUCTION

The Jamie L. Whitten Plant Materials Center (PMC) is operated by the United States Department of Agriculture, Soil Conservation Service (SCS). Formerly called the Coffeeville PMC, the center was renamed the Jamie L. Whitten PMC on May 24, 1991, in honor of Congressman Whitten from nearby Tallahatchie County, Mississippi, for his leadership and support for conservation.

The PMC is part of a network of 26 centers operated by the SCS. The National Plant Materials Program began soon after the SCS was founded because it was recognized that better plants were needed. The purpose of the Plant Materials Program is to select improved plant cultivars and develop better methods for the prevention of soil erosion using plants. When cultivars are shown to be superior, they are released to the public for commercial production. Since the program was started, about 300 varieties of superior plants have been released. Many of these are well adapted to the South. The most outstanding of these is probably 'Pensacola' bahiagrass *(Paspalum notatum)*.

The Coffeeville PMC began as part of the much larger Flood Prevention Seed Unit on August 8, 1960. In 1982, the Seed Unit was discontinued and plant materials activities were reorganized and expanded. Throughout its history, the PMC has evaluated over 6,800 plants. A number of these were determined to be superior conservation plants and were later released, not only by Coffeeville but by other PMCs and experiment stations.

Facilities

The Jamie L. Whitten PMC is located within the Holly Springs National Forest on state Hwy. 330 between Coffeeville and Tillatoba. About 5 miles east of Interstate 55 is the headquarters area consisting of an office, greenhouse, seed cleaning and warehouse building, and equipment sheds. In 1990, a program was initiated to upgrade facilities to accommodate recent and rapid advances in biotechnology. The 1200 sq. ft. office building was expanded to 2800 sq. ft. with the addition of a laboratory and conference room (Figure 1).

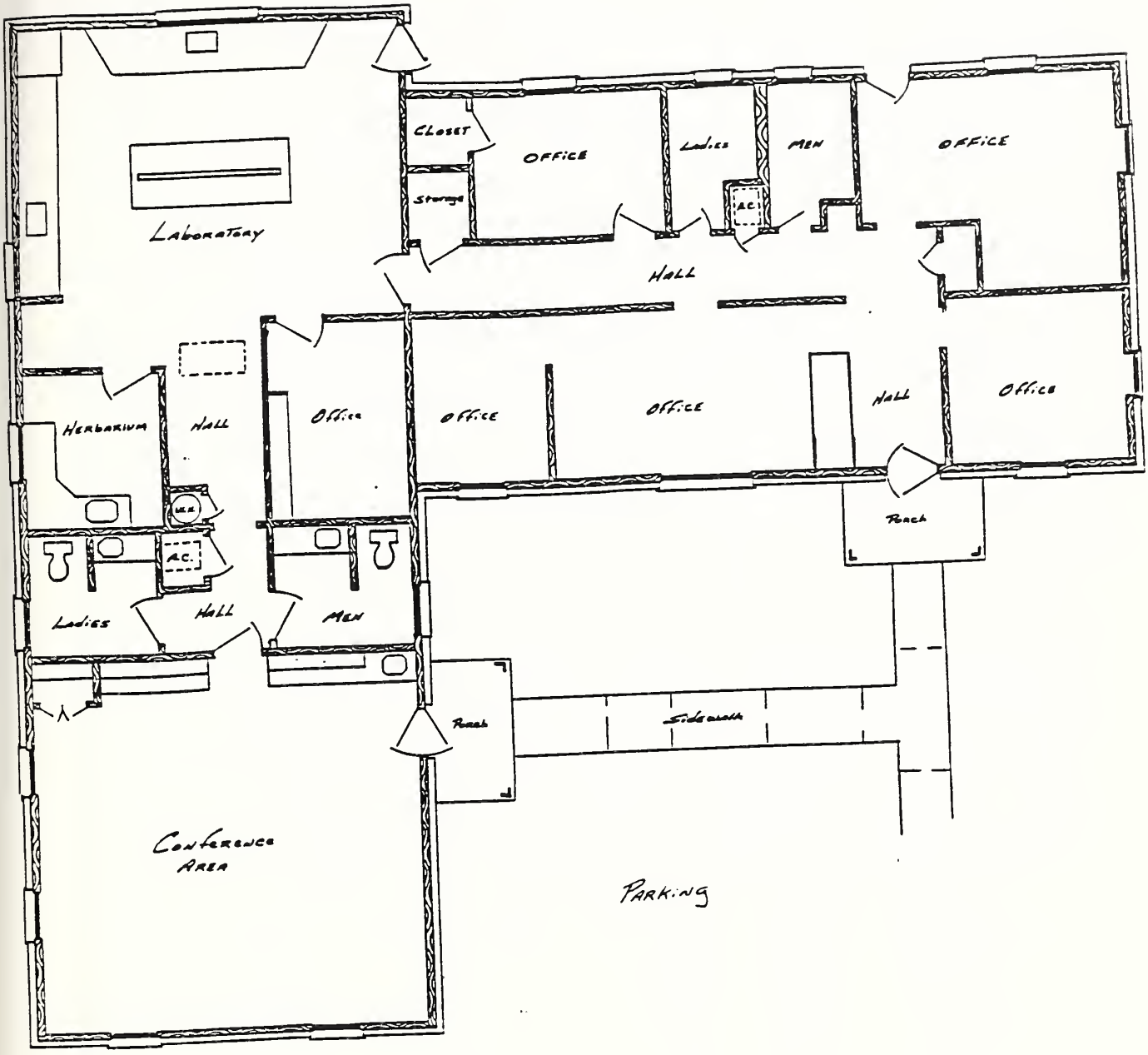


Figure 1. Floor plan for PMC office building showing conference area and laboratory completed in 1991.

Computer capacity was increased so that research information could be accessed from technical databases. In 1991, expansion continued with the construction of a modern equipment shed and shop (Figure 2) to replace two temporary sheds that were erected in the 1950's. Plans were developed for a modern greenhouse complex with sections for seed technology, tissue culture, and water quality experiments in 1991 also.

A short distance from the headquarters area are the main PMC fields. Most work is conducted in the nearly level bottom land on Oaklimeter silt loam which is naturally very acid and wet. With drainage and water control, this soil can be very productive. Soils of the slopes are predominantly Loring and Grenada silt loams with fragipans. The combination of bottom land, hillsides, and streams provides a variety of situations for testing many plants for a number of purposes. The main PMC field consists of 180 acres and may be irrigated from two ponds. An option to use two other fields within the National Forest gives the PMC the potential to expand its operation to 360 acres.

Weather

During the last several years, extreme weather conditions at the PMC have become the norm. Some of the wettest weather, some of the driest, some of the hottest, and some of the coldest have all become commonplace. A total of 78.24 inches of rainfall was measured at the PMC in 1991. Over 28.30 inches occurred in April and May, curtailing all field work. The year was one of the wettest on record. Rainfall data (inches) for both the PMC and for the official weather station at nearby Coffeeville for 1971 through 1991 are as follows:

YEAR	PMC	COFFEEVILLE	YEAR	PMC	COFFEEVILLE
1971	52.66	48.72	1981	35.37	38.80
1972	58.47	58.91	1982	77.41	77.82
1973	76.54	76.67	1983	84.67	79.26
1974	71.96	69.56	1984	57.00	55.19
1975	64.95	67.13	1985	48.89	46.69
1976	42.65	40.97	1986	56.07	56.00
1977	54.84	56.83	1987	62.69	53.03
1978	50.84	52.24	1988	47.08	42.20
1979	72.08	71.36	1989	74.17	72.90
1980	62.98	58.77	1990	69.62	65.03
			1991	78.24	80.84

Although most plantings were extremely late due to wetness, growing conditions were favorable throughout the remainder of the spring and summer. Rainfall became sparser and not so evenly distributed in late summer and fall, but plant growth was not stressed to the extent it was in 1988.

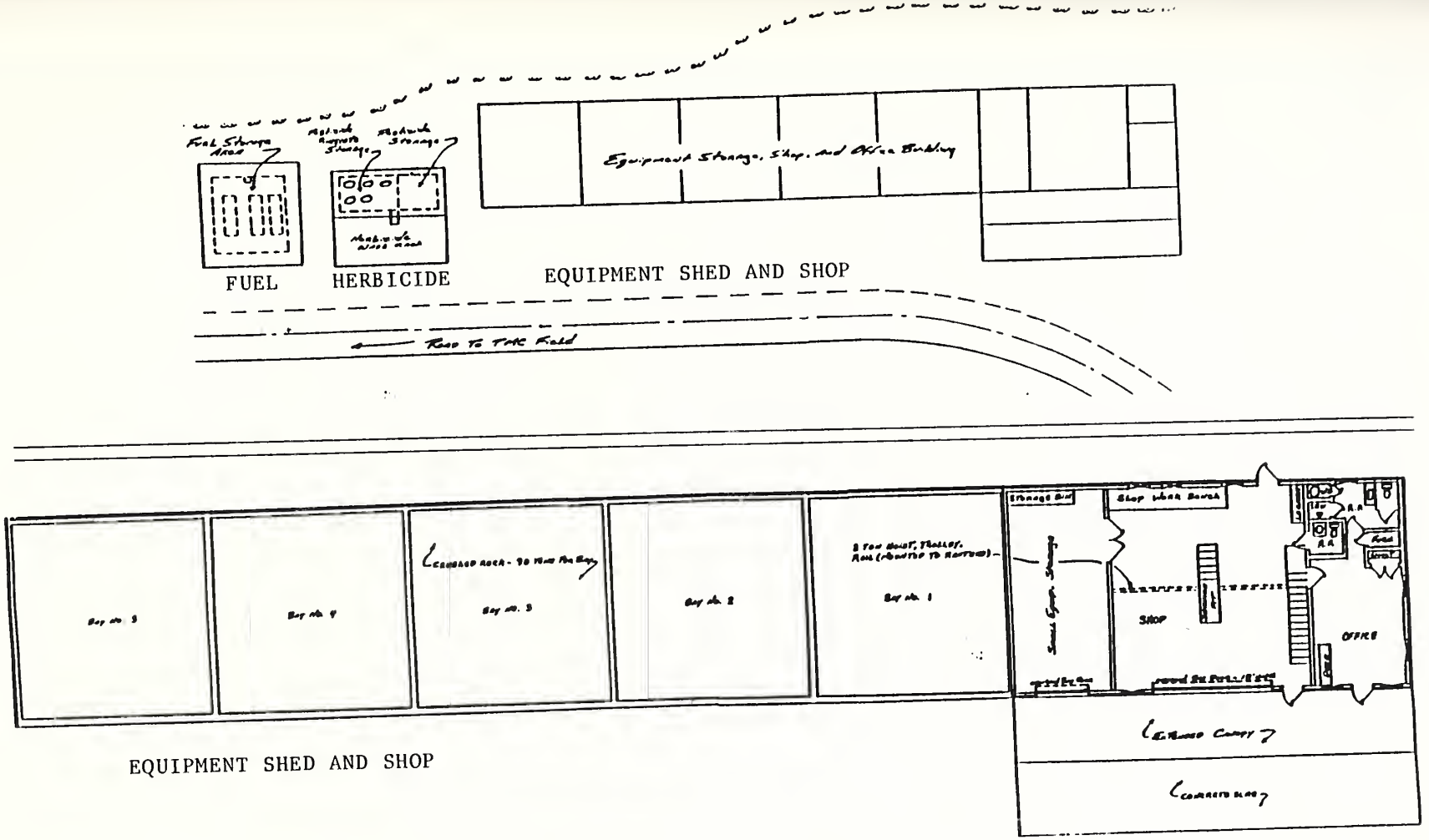


Figure 2. Equipment and storage facilities constructed at Jamie L. Whitten Plant Materials Center, Coffeeville, MS, 1991. The shed and shop building is 210 feet long and 30 feet wide.

The freeze–free growing season extended from March 31 to November 4, a period of 218 days. From January to March, the weather was relatively mild with temperatures dropping below freezing only on 16 days. The lowest temperature recorded during this period was 18°F on January 22.

The second quarter can only be described as wet, at least through May. The third quarter was drier, with temperatures remaining relatively mild. Night temperatures began cooling in early September, and the first frost occurred on October 7. The first killing freeze with temperatures below 32°F occurred on November 4, followed by a light snow on November 8. The snow was one of the earliest on record. Freezing temperatures were recorded for 31 days in November and December. Monthly weather data for the 1991 are summarized in Table 1.

Service Area

The primary service area for the Jamie L. Whitten PMC includes most of Mississippi and significant areas of Alabama, Arkansas, Louisiana, and Tennessee. Throughout the service area, the climate is humid and temperate. Rainfall is approximately 50 inches for most of the area. Droughts in late summer and autumn are common. Temperature increases from north to south. Summer temperatures of 90°F to over 100°F are commonly accompanied by high humidity. Winters are mild in the southern part. Snowfall accumulations are common only in the north. Soil, vegetation, topography, and land usage are closely related to the major land resource area (MLRA).

Long Range Program

Conservation problems for the PMC service area are identified in the PMC Long Range Program. Once the priorities have been established by the State Conservationists' Advisory Committee, the PMC develops project plans to solve the problems given the highest priority. Priorities for the major conservation problems in the Coffeeville PMC service are as follows:

CONSERVATION PROBLEM	PRIORITY
CROPLAND EROSION	HIGH
PASTURE AND RANGELAND EROSION	MEDIUM
WOODLAND EROSION	MEDIUM
CRITICAL AREA EROSION	MEDIUM
WATER QUALITY DETERIORATION	HIGH

Table 1. Weather summary for 1991 for Jamie L. Whitten Plant Materials Center, Coffeeville, Mississippi

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temperature (^{o}F)														
Extreme 1991	High	63	69	81	79	86	91	93	94	99	86	79	72	99
	Low	18	20	31	45	48	63	69	64	48	31	18	23	18
Average 1991	High	49	56	64	71	79	86	85	86	83	78	60	57	71
	Low	35	41	46	56	65	70	71	70	64	49	36	37	53
17 Yr Average 1975-1991	High	46	52	66	71	78	87	91	89	84	72	61	51	70
	Low	30	35	43	51	61	69	73	72	64	50	42	34	52
Precipitation (in.)														
Total 1991		2.58	11.77	6.40	17.42	10.88	3.37	1.59	1.40	2.58	1.89	4.06	13.30	78.24
Average 1975-1991		4.32	5.30	6.28	5.71	6.49	4.82	4.27	2.95	4.26	4.96	6.55	6.14	61.14

First Freeze: 11/04/91 - 21^{o}
Last Freeze: 03/31/91 - 21^{o}
Growing Season: 218 days

MAJOR PROJECTS IN 1991

Problems in the PMC Long Range Program are too complex to solve in one simple operation so they are broken into a set of simpler components. Then the PMC Manager, in consultation with appropriate technical specialists, develops project plans designed to solve one segment of the problem. Projects are designed (1) to select and release improved cultivars for conservation purposes or (2) to develop improved methods to use plant materials.

Projects for Release of Improved Cultivars

From start to finish, the release of an improved cultivar requires about 15 years of testing. The process is usually divided into a series of seven basic steps that are designed to determine the adaptiveness and performance of the plants and to ensure an adequate supply of materials.

Step 1: Assembly

After a project plan is developed and approved by the State Conservationists' Advisory Committee, the PMC starts to collect seeds or plants from many situations to compare at the PMC. Plant collections may come from a variety of sources, both foreign and native. At the PMC, each collection is given a unique accession number for identification throughout the testing program.

A large number of accessions is usually required to ensure that superior plants will be present. An assembly of more than 35 collections of seeds or plants is called a major assembly. Many major assemblies have more than 100 collections.

Step 2: Initial Evaluation

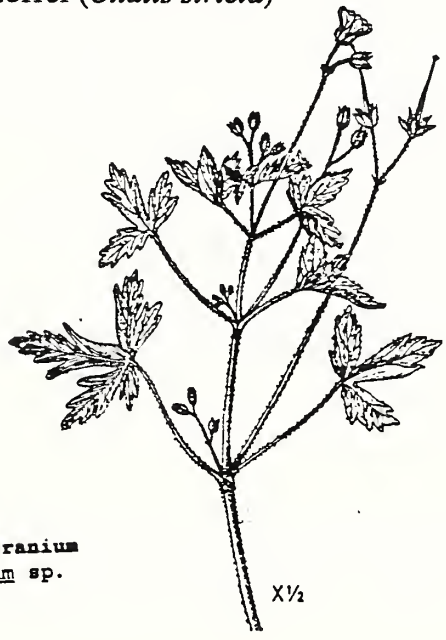
After the seeds or plants arrive at the PMC and are given an accession number, they are planted in rows or small plots. Accessions in each assembly are planted in groups so an easier and more meaningful comparison can be made. Periodically, PMC personnel evaluate the plants for vigor; seed production, resistance to diseases and insects; and tolerance to heat, drought, and cold. Also, the plants are measured and dates of flowering and maturity recorded. At the end of this step, a few of the best accessions are selected for more rigorous testing in advanced evaluations.

Investigations for New Projects

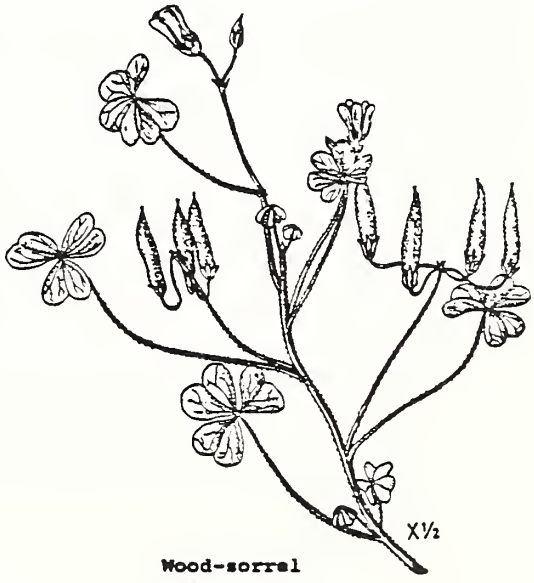
No-till trials for cotton conducted by PMC personnel, both on and off the PMC, have received growing attention since 1987. Many of the trials have shown that winter annuals that occur as "weeds" in cultivated fields can provide good winter cover and are an effective means to control erosion when the soil would otherwise be bare. A good stand of these weeds is also an economic advantage because cover crop seeds would not have to be purchased and planted every year.

Seeds have been collected locally of some low growing, early blooming winter annuals to establish in no-till cotton trials at the PMC. If any of these species are shown to have potential for winter cover in cultivated fields, a larger assembly will be made. The weedy species being considered are:

Annual bluegrass (*Poa annua*)
Chickweed (*Stellaria media)*
Henbit (*Lamium amplexicaule, L. purpureum)*
Wild geranium (*Geranium* spp.)
Wood-sorrel (*Oxalis stricta*)



Wild geranium
Geranium sp.



Wood-sorrel
Oxalis stricta

Evaluations Continue

Initial evaluations continued with no accession selected as candidates for release in 1991 for:

Winter rye (*Secale cereale)* for winter cover.
Dwarf wheat (*Triticum aestivum*) for use with no-till.
Eastern gamagrass (*Tripsacum dactyloides*) for forage and water quality.
Vetiver grass (*Vetiveria zizanioides*) for soil and water protection.

Step 3: Initial or Small Scale Increase

When an initial evaluation has been completed and accessions with superior qualities have been selected, they are increased in small plots to provide material for additional testing. Species and accessions in initial increase in 1991 were:

Partridgepea (*Cassia fasciculata*) for critical eroding areas and field borders.

9021655 collected in Crawford Co., AR, by Wayne Weege.
9021660 collected in Columbia Co., AR, by B. J. Cook.
9028375 collected in Lee Co., AR., by Villines.

Beaked panicgrass (*Panicum anceps*) for critical area erosion control and rangeland improvement.

9002928 collected in Virginia and received from the Quicksand PMC.
9028349 collected in Jefferson County, Arkansas, by A. G. Mendenhall.
9028510 collected in Wayne County, Mississippi, by James A. Wolfe.

Purpletop (*Tridens flavus*) for critical area stabilization and rangeland improvement.

9002937 an experimental line from the Quicksand (KY) PMC.
9041780 another experimental line from the Quicksand (KY) PMC.
9028270 collected in Yell County, Arkansas, by C. G. Fleischman.

Rescuegrass (*Bromus unioloides*) for winter cover with row crops.

250648 from Pakistan through West PI Station.
442079 from Japan through West PI Station.
9054984 collected in Stephens Co., OK, by Kurt Owens.
9054989 collected in Wilson Co., TX, by Astor Boozer.

Slender lespedeza (*Lespedeza virginica*), upright natives, for erosion control in forests and field borders.

9021710 collected in Hinds Co., MS, by James Wolfe.
9045268 collected in Marion Co., AR, by Kenneth Croft.
9045294 collected in Crawford Co., AR, by Tom Gentry.
9045296 collected in Copiah Co., MS, by Bennie Hutchins.

Herbaceous mimosa (*Mimosa strigillosa*) for cropland erosion control and critical area stabilization.

9045323 collected in Concordia Parish, LA, by Wayne Magoun.
9045334 collected in St. John the Baptist Parish, LA, by Davis & Phillips.
9045353 collected in Avoyelles Parish, LA, By Keith Lehto.

Trailing wild bean (*Strophostyles helvola*) for erosion control in forests and field borders.

9008290 from Colorado Co., TX, through Knox City (TX) PMC.
9017146 obtained through National PMC at Beltsville, MD.
9021718 collected in Washington Co., MS, by Clyde Hamberlin.
9021719 collected in Crittenden Co., AR, by J. L. Reid.
9028588 collected in Yalobusha Co., MS, by Joe Snider.

Step 4: Advanced Testing

When sufficient material has been increased, the accessions selected as superior in initial evaluations are tested for ability to solve one or more conservation problems in the PMC Long Range Program. The selected accessions are compared with standard plants that are currently considered the best to solve the problem.

Advanced testing often includes off-center plantings to test plants where soil or other conditions strongly contrast with those at the center. These are conducted as a part of the PMC program or in conjunction with other plant materials activities.

Crownvetch (*Coronilla varia*), heat-tolerant, for critical area stabilization.

Crownvetch is a perennial, herbaceous spreading legume. It has been used extensively for roadbank stabilization and surface mine reclamation in the northern states. Its use in the southeast is limited because of its inability to tolerate the long, hot, humid summers. Strains with heat tolerance and disease resistance have potential for use in the southeast as perennial cover on cropland as well as for erosion control.

Several accessions of crownvetch were initially evaluated soon after the PMC was established, and the planting persisted at the PMC for several years with the accessions spreading out of the original rows and growing together. One accession (9028585) was collected as a composite from the old stand and evaluated with released and field collections from the northern part of the PMC service area. Progeny from the composite were variable indicating that some individuals are adapted to the Coffeeville area. A space planting is being planned to select individuals with the best traits.

Step 5: Field or Large Scale Increase

Accessions that are candidates for release are grown in large quantities for the final stages of evaluation. Some of the material continues to be used in advanced evaluations but much is destined for field plantings.

Step 6: Field Plantings

The last step in evaluating a candidate for release by a PMC is the field planting. In field plantings, the test plant is compared to standards (best plants currently available for that purpose) in actual field situations. At this point, the test plants are still in the experimental stage and are not to be harvested and sold before they are formally released.

Field planting evaluations were concluded in 1991 for the following candidates for release at the Jamie L. Whitten PMC.

Afghan reedgrass (*Calamagrostis pseudophragmites*, PI-220584)
Goat willow (*Salix caprea*, PI-434284)
Gilg willow (*Salix gilgiana*, 9004882)
Erect willow (*Salix rigida*, 9004885)
Prairie willow (*Salix humilis*, 9004886)

Step 7: Cultivar Release and Use

When data from all of the previous steps have been assembled, they are presented to the cooperating agencies and release committee. If they agree that the plant is superior, the plant is cooperatively named and released for commercial production and use. The Coffeeville PMC has responsibility for maintaining breeder and foundation blocks of its releases and does not supply plant material to the general public. It only maintains small "foundation" blocks to provide genetically pure stock to qualified growers who supply the public.

Projects to Develop Improved Methods

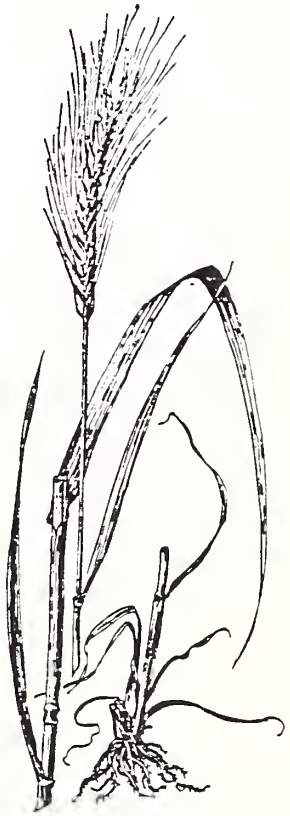
The investigation of new methods to use conservation plants has been a part of the Coffeeville PMC operation throughout much of its history. In response to the Food Security Act of 1985, the PMC placed increased emphasis on developing better methods to solve erosion problems using plants. Much of this work involved developing no-till systems for common row crops, especially cotton.

Cover Crop Trials for No-Till Cotton Concluded

In 1989, experiments were initiated (1) to develop better methods to establish cover crops in no-till (NT) cotton and (2) to determine the effects of cover crops and tillage on cotton. These projects were scheduled to run for 3 years, and 1991 was the third and final year.

Establishment Methods for Cover Crops

For the establishment study, no tillage, disking once (1X), chiseling 1X, and paraplowing were evaluated for establishing wheat, rye, crimson clover (*Trifolium incarnatum*), and hairy vetch (*Vicia villosa*) in NT cotton. Canopy cover was determined for the four species at various intervals, early February (Feb), the latter half of March (Mar), and mid-April (Apr), and dry matter (DM) production was determined in April. The two grass species, rye and wheat, produced better cover during the winter and early spring than the legumes (Table 2). Hairy vetch provided little canopy cover during the fall and early winter months; however, by mid-April canopy cover was excellent. Canopy cover by rye and wheat was probably decreased by excessive rainfall in the spring of 1991. During this time, the grasses often showed signs of nitrogen deficiency from March to April unlike the vetch which retained a deep green color. Stands of crimson clover were killed during a sudden freeze in late December 1990, and the data from these



Winter rye
Secale cereale

plots were not included in the analyses. Seedcotton yield was not significantly different for the various treatment, but the disk 1X treatment tended to be lower (Table 3).

Table 2. Average canopy cover (%) by dates and dry matter yields by cover crop and establishment method, 1989-1991.

Treatment	Canopy cover Feb	Mar	Apr	DM yield Apr
Cover crop				
Crimson clover	30	41	60	1138
Hairy vetch	25	60	94	1446
Rye	61	54	68	2287
Wheat	66	59	68	2099
Establishment method				
No-till	47	53	75	1889
Paratill	47	57	79	1829
Chisel 1X	48	60	76	1824
Disk 1X	42	47	73	1544

Table 3. Average seedcotton yield (lb/A) as affected by cover crop and establishment method, 1989-1991.

Treatment	1989	1990	1991	Average
Cover crop				
Crimson clover	1640	2052	---	1846
Hairy vetch	1790	2260	1702	1914
Rye	1512	1872	1644	1676
Wheat	1695	2076	1630	1800
Establishment method				
No-till	1822	1878	1627	1776
Paratill	1771	2032	1689	1831
Chisel 1X	1608	2322	1696	1875
Disk 1X	1436	2029	1625	1697

Effects of Cover Crops and Tillage

In this study, native weeds provided better coverage from November 1990 until spring (Table 4). Canopy cover from the planted cover crops was lower than usual due to excessive rainfall in 1991. Stands of crimson clover plots were killed during a sudden freeze in late December 1990. Therefore, data from these plots were not included in the analyses. No differences occurred between cover crops for DM yield.

Table 4. Average cover crop canopy cover by dates and dry matter yield, 1989-1991.

Cover crop	Canopy cover, % Feb	Mar	Apr	DM yield Apr
Crimson clover	80*	56	64	1420
Hairy vetch	33	59	93	1490
Wheat	59	61	74	2246
Native	52	65	76	1061

* Value for crimson clover is artificially high because it represents only 1 year of data.

Although they were higher for NT cotton than conventional tillage (CT), differences were not statistically significant. Neither were the differences between cover crops significant. In 1991, planting was delayed until June 3, approximately 3 weeks after the last recommended planting date, due to excessive rainfall. However, climatic conditions during the growing seasons favored plant growth and the cotton was harvested in mid-October. Seedcotton yield was significantly higher for NT cotton than CT cotton in 1991 (Table 5). This suggests that tillage is not necessary when adverse weather hinders planting during the optimum dates.

Table 5. Seedcotton yield (lb/A) as influenced by cover crop and tillage systems, 1989-1991.

	No-till			Conventional			Average	
Cover crop	1989	1990	1991	1989	1990	1991	NT	CT
Crimson clover	1584	2736	---	1492	2797	---	2160	2144
Hairy vetch	1854	3002	2384	1257	3042	1699	2413	1999
Wheat	2125	2716	2053	1303	2777	2134	2298	2071
Native	2054	2287	2118	1426	2695	1782	2153	1968
Average	1904	2684	2185	1370	2828	1872	2256	2046

NT=No-till; CT=Conventional tillage.

While these studies did not show that significantly more cotton could be produced NT than CT, they did show that cotton grown NT was as productive and also resulted in a significant reduction in erosion. Some savings could be realized by not having to run the tractor so many times with NT. Another reduction in operating expense could be realized also when winter annuals formed good ground cover reducing seeding cost; however, these weeds did not benefit the soil by adding nitrogen like the legumes.

Herbicide Trials for Selected Plants

Many kinds of plants are grown and tested at the PMC, and often little or no information is available concerning their response to herbicides. This information is needed for weed control in PMC projects and to provide information to growers if the plant is later released for public use. In 1991, two replicated herbicide trials were initiated to test the effects of some common herbicides on selected plants. In one trial (study 1), herbicides were preplant incorporated or applied preemergence. In the other trial (study 2), postemergence herbicides were applied four weeks after planting (Table 6). Gulf cordgrass (*Spartina spartinae*), marshhay cordgrass (*S. patens*), beaked panicgrass, and vetiver grass were transplanted while the other accessions were established from seed. Crop injury was rated at 14 and 28 days after treatment. Plant height and width were measured when all plants had matured.

Table 6. Herbicides used in trials for selected plants (Coffeeville, MS, 1991).

Symbol	Herbicide	Familiar Name[#]	Study
ACI	Acifluorfen	Blazer	2
ATR	Atrazine	Atrazine	1
BEN	Bentazon	Basagran	2
CHL	Chlorimuron,	Classic	2
CYA	Cyanazine	Bladex	2
FLM	Fluometuron	Cotoran	1
FLU	Fluaziflop-P-butyl	Fusilade	2
IMA	Imazaquin	Sceptor	2
MET	Metolachlor	Dual	1
TRI	Trifluralin	Treflan	1
Ck	Check	None	1,2

[#] Familiar names are brand names that are frequently used to refer to herbicides. They were used to simplify reading and no endorsement or recommendation of these brands in preference to others is intended.

Study 1: Preplant and Preemergence Herbicide Trials

Generally, transplanted species were not affected by the herbicides while legumes were killed by fluometuron and atrazine (Table 7). Height of gulf cordgrass was significantly decreased by trifluralin but width was not affected (Table 8). Width of marshhay cordgrass was increased by fluometuron and metolachlor. This is interesting to note since these two chemicals are commonly used for cotton weed control. Height and width were not measured for trailing wildbean

and partridgepea since they were heavily grazed by deer. Beaked panicgrass died due to some undetermined reason.

Table 7. Injury to selected plants by soil applied herbicides at 14 and 28 days after treatment (DAT), 1991.

Plant Materials	14 DAT					28 DAT				
	FLM	MET	TRI	ATR	Ck	FLM	MET	TRI	ATR	Ck
Gulf cordgrass	0a*	0a	0a	0a	0a	0a	0a	0a	0a	0a
Marshhay cordgrass	0a	0a	0a	0a	0a	0a	0a	0a	0a	0a
Sericea lespedeza	9a	1b	1b	9a	0b	9a	3b	2b	9a	0b
Herbaceous mimosa	9a	0b	0b	9a	0b	9a	1b	0b	9a	0b
Beaked panicgrass	0a	0a	0a	0a	0a	0a	0a	0a	0a	0a
Partridgepea	8b	0c	0c	9a	0c	9a	1b	0b	9a	0b
Trailing wildbean	9a	0b	0b	9a	0b	9a	1b	0b	9a	0b
Vetiver grass	0a	0a	0a	0a	0a	0a	0a	0a	0a	0a

+ Rating scale: 0=No injury, 9=complete kill.

* Row means within dates not followed by a common letter are significantly different as determined by DMRT ($P \leq 0.05$).

Table 8. Height and width of plant accessions at maturity as affected by soil applied herbicides, 1991.

Plant Materials	Herbicide				
	FLM	MET	TRI	ATR	Ck
	Height, cm				
Gulf cordgrass	126a#	119a	27b	121a	89a
Marshhay cordgrass	71a	53ab	22b	59a	45ab
Sericea lespedeza	0b	50a	46a	0b	45a
Herbaceous mimosa	0c	7b	9a	0c	8ab
Beaked panicgrass	--	--	--	--	--
Partridgepea	--	--	--	--	--
Trailing wildbean	--	--	--	--	--
Vetiver grass	112a	117a	110a	114a	103a
	Width, cm				
Gulf cordgrass	79a	53ab	13b	51ab	28b
Marshhay cordgrass	68a	61a	14c	53ab	20bc
Sericea lespedeza	0b	56a	50a	0b	45a
Herbaceous mimosa	0b	102a	102a	0b	102a
Beaked panicgrass	--	--	--	--	--
Partridgepea	--	--	--	--	--
Trailing wildbean	--	--	--	--	--
Vetiver grass	87a	87a	83a	81a	62a

Row means not followed by a common letter are significantly different as determined by DMRT ($P \leq 0.05$).

Study 2: Postemergence Herbicide Trials

Bentazon, fluaziflop-P-butyl, and imazaquin caused little or no injury to the plant accessions (Table 9). Acifluorfen, cyanazine, and chlorimuron increased crop injury to sericea lespedeza, partridgepea, and trailing wildbean. Herbaceous mimosa showed little or no injury to these herbicides but plant height was increased by bentazon (Table 10). Plant width of lespedeza was decreased by chlorimuron.

Trailing wildbean
Strophostyles helvola

Table 9. Injury+ to selected plants by foliar applied herbicides at 14 and 28 days after treatment (DAT), 1991.

Plant Materials	Herbicide						
	BEN	ACI	CYA	CHL	FLU	IMA	Ck
	----------14 DAT----------						
Gulf cordgrass	0a*	0a	0a	0a	0a	0a	0a
Marshhay cordgrass	0a	0a	0a	0a	0a	0a	0a
Sericea lespedeza	0b	2a	0b	3a	0b	0b	0b
Herbaceous mimosa	1a	0a	1a	0a	0a	0a	0a
Partridgepea	0b	8a	7a	0b	0b	0b	0b
Trailing wildbean	0c	8b	9a	8b	0c	0c	0c
Vetiver grass	0a	1a	1a	0a	1a	2a	0a
	----------28 DAT----------						
Gulf cordgrass	0a	0a	0a	0a	1a	1a	0a
Marshhay cordgrass	0a	0a	0a	0a	0a	1a	0a
Sericea lespedeza	0c	4ab	2bc	6a	0c	0c	0c
Herbaceous mimosa	0a	0a	0a	0a	0a	0a	0a
Partridgepea	0c	4b	7a	0c	0c	0c	0c
Trailing wildbean	0c	6b	9a	5b	1c	0c	0c
Vetiver grass	0a	1a	1a	0a	1a	1a	0a

+ Rating scale: 0=No injury, 9=complete kill.

* Row means not followed by a common letter are significantly different as determined by DMRT ($P \leq 0.05$).

Table 10. Height and width of plant accessions at maturity as affected by foliar applied herbicides, 1991.

Plant Materials	Herbicide						
	BEN	ACI	CYA	CHL	FLU	IMA	Ck
	---------- Height, cm ----------						
Gulf cordgrass	49a#	78a	97a	54a	29a	74a	67a
Marshhay cordgrass	15a	39a	51a	32a	41a	38a	47a
Lespedeza	43ab	37bc	42ab	34c	43ab	43ab	47a
Mimosa	10a	6b	7ab	7ab	10a	7ab	6b
Partridge pea	--	--	--	--	--	--	--
Trailing wildbean	--	--	--	--	--	--	--
Vetiver	101a	80a	105a	101a	95a	90a	95a
	---------- Width, cm ----------						
Gulf cordgrass	22a	34a	36a	21a	19a	46a	30a
Marshhay cordgrass	9a	24a	31a	13a	17a	21a	17a
Lespedeza	62ab	47ab	67a	43b	64ab	63ab	67a
Mimosa	81a	56a	81a	62a	76a	85a	78a
Partridge pea	--	--	--	--	--	--	--
Trailing wildbean	--	--	--	--	--	--	--
Vetiver	60a	54a	67a	54a	38a	50a	47a

Row means not followed by a common letter are significantly different as determined by DMRT ($P \leq 0.05$).

Biotechnical Applications using Vetiver Grass

After being hit hard by an extremely cold period in December 1989, the future for vetiver grass looked gloomy. However, it had kindled an interest in the vegetative hedge concept. More vetiver was obtained in 1990, and it survived the relatively mild winter of 1990-91. These survivors plus some others obtained from Sunshine, Louisiana, were used in PMC plantings for streambank erosion control and as vegetative terraces. Approximately one-fourth mile of vetiver was planted in rows along the contour of sloping fields. 'Alamo' switchgrass (*Panicum virgatum*), being cold hardy, was also tried as a vetiver substitute and looked promising at the end of the summer. These plantings will need to be observed for another year or two to determine their effectiveness, but plans are to expand testing vetiver and other plants as inexpensive alternatives to engineering practices for controlling erosion.

FIELD ACTIVITIES IN ARKANSAS, LOUISIANA, AND MISSISSIPPI

Vegetation for Surface Mine Reclamation

The SCS cooperates with many government agencies, researchers, corporations, and individuals in testing plants. Probably in no other phase of its work does the Plant Materials Program cooperate with more groups or individuals than in the realm of mine reclamation.

Completed Evaluations in Mississippi and Louisiana

Beginning in 1985, the SCS entered into a cooperative effort with the Mississippi Department of Natural Resources, Bureau of Geology, to test plant materials on a variety of soil materials encountered in surface mine reclamation. Since mine spoil materials were often like those encountered in other critical eroding areas, the mines provided a good opportunity for testing a wide variety of conservation plants under relatively controlled conditions. The initial plantings were designed to test common and released cultivars not ordinarily used in Mississippi.

The first set of plantings consisted of 24 warm season species or varieties grown in replicated plots. 'Pensacola' bahiagrass and common bermudagrass (*Cynodon dactylon*), commonly used for mine reclamation, were used as standards for comparison. Other warm season plants were as follows:

PLANT MATERIALS	VARIETY
Bluestem, big (*Andropogon gerardii*)	'Kaw'
Bluestem, Caucasian (*Bothriochloa caucasica*)	Commercial
Bluestem, little (*Schizachyrium scoparium*)	'Aldous'
Bluestem, yellow (*Bothriochloa ischaemum*)	'Plains'
Bluestem, yellow (*B. ischaemum* var. *songarica*)	'King Ranch'
Buffalograss (*Buchloe dactyloides*)	'Texoka'
Carpetgrass (*Axonopus affinis*)	Commercial
Crownvetch (*Coronilla varia*)	'Emerald'
Dallisgrass (*Paspalum dilatatum*)	Commercial
Deertongue (*Dicanthelium clandestinum*)	'Tioga'
Grama, blue (*Bouteloua gracilis*)	'Hachita'
Grama, sideoats (*B. curtipendula*)	'Haskell'
Indiangrass (*Sorghastrum nutans*)	'Lometa'
Lespedeza, common (*Lespedeza striata*)	'Kobe'
Lespedeza, sericea (*L. cuneata*)	'Appalow'
Lespedeza, sericea (*L. cuneata*)	Common
Lovegrass, Lehmann (*Eragrostis lehmannia*)	Commercial
Lovegrass, sand (*E. trichoides*)	'Mason'
Lovegrass, weeping (*E. curvula*)	'Ermello'
Millet, browntop (*Panicum ramosum*)	Commercial
Sacaton, alkali (*Sporobolus airoides*)	'Saltalk'
Switchgrass (*Panicum virgatum*)	'Alamo'

In 1985, six of these plantings were made at surface mines in Mississippi. In 1986, another was added, by request, at a surface mine north of Denham Springs, Louisiana (DENS). All plantings were initially treated with 500 lb/A (13-13-13) fertilizer and 2 T/A lime. No additional fertilizer or lime was added throughout the evaluation period because the intention of the trial was to determine which plants, if any, would grow in situations when mines were planted and abandoned with little or no maintenance, as is often done.

Locations of mine plantings with type of "soil material" involved are as follows:

SYMBOL	LOCATION	MINE TYPE	MATERIAL
CS-1	Crystal Springs, MS	Gravel	Sand (Very dry, low fertility)
HATT	Hattiesburg, MS	Gravel	Sand (Very dry, low fertility)
DENS	Denham Springs, LA	Gravel	Sand (Very dry, low fertility)
CS-2	Crystal Springs, MS	Gravel	Silt loam (About 40% gravel)
LOVE	Love, MS	Gravel	Silt loam (About 12% gravel)
RP-1	Ripley, MS	Bentonite	Loam (fragments 65%, very acid)
RP-2	Ripley, MS	Bentonite	Loam (Powdery, very erodible)

Stand data as per cent ground cover were taken for all plots in September for the 3-year evaluation period. As indicated in Table 11, data could not be recorded for every year. Browntop millet, being an annual commonly used for quick temporary cover, did not reseed. One mine (LOVE) was completely destroyed the second year as the entire area was reworked and landscaped; it was badly eroded by a heavy rain immediately after planting and was among the worst. Another bad site was at Ripley (RP-2) where the material was the silty residue after clay extraction. It had been spread back on the land where the powder-like material would blow when dry and wash away when wet. Shortly after planting, a rain washed gullies up to 3 feet deep through the planting and bales of hay were used in an attempt to stop erosion. However, the hay had weed seeds that produced plants up to 10 feet tall causing poor performance of most species. However, most of the test plants grew well on the loamy material when given a chance.

The sandy sites (CS-1, HATT, DENS) were the most difficult to vegetate. They were very droughty, and fertilizer leached through the sand rapidly. After the evaluation period was completed, the mine at Hattiesburg (HATT) was selected for some additional studies. Beginning in 1989, the warm season plots were fertilized with approximately 300 lb/A fertilizer (13-13-13), broadcast, annually each spring through 1991. The weeping lovegrass then began to grow much more vigorously and produce more seed. By 1991, the weeping lovegrass had spread over much of the test area.

Table 11. Average stand for four replications of warm season plants in mine trials over the 3-year period.

PLANT MATERIALS	CS-1	HATT	DENS	CS-2	LOVE	RP-1	RP-2
Bahiagrass	5=	4=	13>	74=	2*	38=	1=
Bermudagrass	6=	11>	7>	77>	8*	55>	52=
Bluestem, big	3<	2=	7=	18<	2*	21>	19=
Bluestem, Caucasian	4=	1=	2=	71=	20*	13=	15=
Bluestem, little	9<	4<	12>	25<	3*	28<	1=
Bluestem, yellow, King Ranch	3=	1=	2=	72<	12*	28=	18<
Bluestem, yellow, Plains	3=	0=	1=	26>	3*	8>	2=
Buffalograss	4=	0=	0=	15=	18*	26=	1=
Carpetgrass	0=	1>	16>	19>	6*	2>	0=
Crownvetch	0=	0=	0=	6>	9*	13>	3>
Dallisgrass	0=	0=	10>	41>	25*	23>	3=
Deertongue	1=	0=	4=	1>	6*	1=	2=
Grama, blue	18<	8=	1=	45=	24*	72=	2=
Grama, sideoats	13<	1=	0=	14=	19*	15>	0=
Indiangrass	3=	2<	11=	48<	34*	41<	13<
Lespedeza, common	2=	5>	1=	75<	26*	51>	21<
Lespedeza, sericea, Appalow	2=	3=	1=	28>	19*	25<	8<
Lespedeza, sericea, Common	3=	3=	2=	38<	26*	51<	25<
Lovegrass, Lehmann	5=	12=	5>	17>	25*	3>	0=
Lovegrass, sand	6=	5=	3=	26>	20*	37>	8<
Lovegrass, weeping	47<	64<	19=	79=	35*	76=	42=
Millet, browntop	22*	20*	12*	84*	28*	60*	0=
Sacaton, alkali	0=	0=	0=	9>	15*	1>	0=
Switchgrass	21=	26>	15=	60=	36*	37<	62<

* - Evaluation for only 1 year.
< - Improvement over average at end of 3 years.
> - Decrease in stand during 3 years.
= - Stand essentially same over 3 years.

Also in 1989, 'Atlantic' coastal panicgrass (*Panicum amarum*) was seeded into a strip beside the existing plots at HATT. Half of the strip was fertilized at the same rate as the plots; the other half received no fertilizer. Although essentially no coastal panicgrass was observed in the unfertilized part, the fertilized area had a good stand and was producing some seed by fall. In 1991, bunches of the grass were observed outside the test plots.

Seedlings of bitter panicum (PI-421932, 9003324, plus Atlantic) were also planted at Hattiesburg in another block. The seedlings were started in the Coffeeville PMC greenhouse from seeds collected from a field planting at Gulfport, Mississippi. The seeds were collected to determine what potential, if any, the bitter panicum accessions had for reseeding. All accessions had some viable seeds, but Atlantic was by far the most prolific. The greenhouse seedlings were then transplanted to plots adjacent to the seeded strips of

Atlantic and fertilized accordingly. Survival was good for all transplants being 98, 96, and 91 per cent for Atlantic, PI-421932, and 9003324, respectively. Atlantic survived the winter of 1989-90 well while the others did not emerge the following spring. Apparently, they were winter killed by the extremely cold weather in December.

Evaluations in Progress in Arkansas

Coal has been mined in Arkansas since the 1870's resulting in many useless and unsightly abandoned mine areas. Currently about 9,000 acres of active or abandoned surface mines are being reclaimed. In abandoned areas, topsoil and subsoil, sometimes with a pH of 4.0 to 5.5, were left intermingled making reclamation difficult. Information is needed, not only to determine which plants will survive and grow well under these harsh conditions, but also which species can be established economically and provide a source of income.

The Booneville PMC has been conducting trials on surface mines in the area since 1988. Since then 2745 plots with a total of 77 accessions have been planted using different fertility and establishment treatments. The plantings have included forage species, trees, and horticultural cultivars of grapes, blueberries, and blackberries. Plantings have been made in a number of locations as follows:

PLANTED	LOCATION	PLOTS	PLANT MATERIALS
1988	Hartford	336	Cool Season Forage
1988	Russellville	336	Cool Season Forage
1989	Hartford	456	Warm Season Forage
1989	Clarksville	456	Warm Season Forage
1990	Charleston	456	Warm Season Forage
1990	Charleston	336	Cool Season Forage
1990	Charleston	33	Blueberry, Blackberry, Grape
1991	Charleston	336	Cool Season Forage

Plans have been made to plant pecan, walnut, peach, and apple trees in 1992. Preliminary observations indicate that several accessions, some of which had never been tested in the area, have promise.

Native Vegetation for Natchez Trace Parkway

An interagency agreement was signed between the SCS in Mississippi and the National Park Service on August 10, 1990. The agreement provided for the SCS to increase 15 species of native plants collected along the Natchez Trace Parkway so that no new ecotype would be introduced to the Parkway. The increase is to be used to vegetate slopes along sections of the Parkway now under construction.

Seeds of all of the 15 species were collected, where possible, and increased in 1991. For most woody species, root or stem cuttings were made and placed in propagation beds to root. Because of difficulty in collecting some species, the list was modified to add plains coreopsis (*Coreopsis tinctoria*) for the blue aster (*Aster* sp.), Carolina rose (*Rosa carolina*) for Virginia rose (*R. virginiana*), and Elliott's blueberry (*Vaccinium elliottii*) for highbush blueberry (*V. corymbosum*).

In 1991, plans were made to increase more plants than in the original agreement and to add some new species to vegetate another section of the Natchez Trace to be constructed in the near future. Also, a project was developed to establish test plots at the PMC to learn more about when and how the native species should be planted for best results.

Wetland Plants for Waterways Experiment Station

On May 3, 1991, an interagency agreement was signed with the Waterways Experiment Station (WES) at Vicksburg, Mississippi. This agreement provided for the Jamie L. Whitten PMC to (1) develop a directory of vendors having wetland plants; (2) prepare a manual on identification, propagation, establishment, and management of species used for wetland mitigation; and (3) provide for testing plants in drawdown areas of Corps of Engineer reservoirs.

Work is well underway on the WES project. The directory of vendors is essentially completed, and work on the manual is underway. Fourteen accessions of wetland plants were obtained from commercial sources to be used for trial plantings on reservoir drawdown sites in Kansas, Mississippi, New York, and Oregon in 1992 using assistance of PMCs in those states. A trial planting, using the 14 accessions, was made at Grenada Reservoir in Mississippi in the fall of 1991 by the PMC at Coffeeville. Species being used in these widely separate areas are those that occur over a wide geographic range and include various species of sedge (*Carex lupulina, C. stricta*), soft rush (*Juncus effusus*), and bulrush (*Scirpus americanus, S. cyperinus, S. robustus, S. validus*). Some of the same species were obtained from nurseries in Florida, Maryland, and Wisconsin to determine how origin might affect the behavior of plants growing in the diverse situations.

Field Plantings

Field plantings are made to gather information on the performance and acceptance of PMC selections by cooperators before release. After release, plantings may be made to gather more information when their range of adaptation is not clearly known.

Prior to field planting, a long range plan is prepared for the orderly testing of the promising plant. Field plantings are usually scheduled over a number of years in a variety of soil and climatic conditions, if possible. The test sites are provided by conservation district cooperators, mining companies, local governments, and others. The plantings and evaluations are usually conducted through SCS field offices. Field plantings are coordinated by Plant Materials Specialists who generally serve more than one state, and each state may test plants from several PMCs. Plants in these trials came from PMCs at Brooksville, Florida; Americus, Georgia; Manhattan, Kansas; Quicksand, Kentucky; Elsberry, Missouri; Cape May, New Jersey; Big Flats, New York; and Knox City, Texas as well as the Coffeeville PMC.

No PMC has presented any release candidates to test in the area so no new long range plans for field plantings were implemented in 1991. Evaluations for all field plantings were completed in 1991 as scheduled with the following conclusions.

Release Candidates from Coffeeville PMC

Afghan Reedgrass

Afghan reedgrass (PI-220584) was tested in field plantings from 1984 to 1989 for use in a variety of situations. In most cases, performance was poor. The only situation where the plants grew well was at an overland flow waste treatment facility near Alma, Arkansas. In most cases plants could not endure harsh field conditions. Six of the 14 plantings did not survive one year, largely due to drought. Of the remainder, only three survived for more than 4 years. Since the grass had to be established vegetatively, it was not enthusiastically accepted by cooperators because other species that could be established from seeds and perform as well or better were commercially available.

Willows

Four accessions of willow, goat (PI-434284), gilg (9004882), erect (9004885), and prairie (9004886), were evaluated in field plantings from 1983 to 1989. 'Bankers' dwarf willow (*Salix cotteti*) and 'Streamco' purpleosier willow (*S. purpurea*) along with a local black willow (*S. nigra)* were used as standards for comparison. Planted mostly on eroding streambanks, survival was generally poor for all species. During the planting year, failure was reported for entire plantings of the four release candidates as follows: erect, 50 per cent; gilg, 56 per cent; goat, 100 per cent; and prairie, 100 per cent. Where plantings were successful survival was low. The per cent of plants that lived was 14, 21, 25, 16, and 25 for erect, gilg, Bankers, Streamco, and black, respectively. After 2 years survival had dropped to 1, 6, 5, 4, and 13 per cent for the respective species. No planting of erect willow persisted for over 2 years.

For gilg willow, success was a little better; two plantings (13 per cent) survived 2 years and one (6 per cent) lasted for 5 years. Bankers performed as well or better than any of the other species, and since it was already released and commercially available, it is recommended for the PMC service area.

Cultivars or Release Candidates from Other PMCs

Marshhay Cordgrass

Three accessions of marshhay or saltmeadow cordgrass were tested in field planting in Arkansas, Louisiana, and Mississippi from 1986 to 1991. Native to coastal areas, this species was planted in a number of situations and generally performed well except in the most arid sands. The performance of 'Avalon' which was released by the Cape May PMC for coastal situations was generally not as good as the two of southern origin, PI-415141 and PI-421238, released in 1991 as 'Flageo'. Striking success with marshhay cordgrass was obtained in southwest Arkansas in areas where brine released from oil wells in the 1920's had destroyed vegetation, and district increases of Flageo were started in 1991 to provide plants to reclaim bare, salt damaged sites in that vicinity.

Bitter Panicum or Coastal Panicgrass

Two accessions of bitter panicum (P. amarum, PI-421932 and 9003324) from the Brooksville PMC were tried for sand dune stabilization in Mississippi from 1986 to 1991. One planting was made at Gulfport to prevent sand from the beach from covering the highway and was very successful. Since it was planted there in 1986, it has built a dune about 4 feet high and reduced highway maintenance considerably. Another planting was made on mine spoil of deep, droughty pure sand at Hattiesburg. Atlantic coastal panicgrass along with 'Ermello' weeping lovegrass were the only two species to have any success on sandy mine spoil. The other two accessions of bitter panicum died during the cold weather of December 1990. Atlantic also has an advantage over the other two because it can be established more readily from seeds and will produce more viable seeds once established.

Sericea Lespedeza

Common sericea growing at the PMC and 'Interstate' were used as standards to test 'Okinawa', a candidate for release from the Americus PMC, and 'Appalow', a release from the Quicksand PMC. These were evaluated in field plantings from 1983 to 1991. Most plantings of sericea were successful. Both common and Interstate appeared to be slightly better than Okinawa. Appalow, being a short variety, did not appear to endure weed competition as well as the taller varieties. In some places, 'Ambro' virgata lespedeza (*L. virgata*) was included in the field plantings but did not perform as well as any of the sericeas.

Indigos

False anil indigo (*Indigofera pseudotinctoria*, PI-198015) from the Americus PMC and Western indigo (*I. miniata*, PI-477963) from the Knox City PMC were tried in field plantings from 1982 to 1991 for critical area erosion control and for wildlife use. Neither accession was outstanding; however, the Western indigo appeared to perform slightly better. In about half of the plantings, failure to obtain a stand was reported the first year. Plants of successful plantings were slow to grow, but some looked good after 3 or 4 years. However, sericea lespedeza provided cover more quickly.

Native, Warm Season Grasses

Cultivars of switchgrass, Indiangrass, and big bluestem were compared in field plantings in Arkansas, Louisiana, and Mississippi from 1981 to 1991. Since bermudagrass and bahiagrass were popular and widely used species for pasture in most of the area, most interest in native grasses was in northwest Arkansas where the temperature often becomes cold enough to kill or damage bermuda and bahia. Much of the pasture in the Ozark area is provided by tall fescue, a cool season grass, which does not perform so well in the hot, droughty summers common to the area.

'Alamo' switchgrass, a release from the Knox City PMC, was compared with 'Blackwell' and 'Kanlow'. Kanlow is a lowland type of switchgrass while Blackwell is better adapted to drier situations. Of 25 field plantings attempted, 10 were reported as complete failures with 7 of these being from Louisiana. Generally, Alamo performed better than either Kanlow or Blackwell. Kanlow was clearly superior in one wet situation but was a complete failure in three dry sites; at one of these dry sites, Blackwell appeared to be better than Alamo.

Indiangrass was planted in 24 field planting in Arkansas, Louisiana, and Mississippi with 16 being made in Arkansas. Failure to obtain a stand was reported for 50 per cent of all attempts. Only one planting, which was in Arkansas was rated as "good." All others were either "fair" or "poor." No cultivar in the test was distinctly superior. Generally, 'Lometa', a release from the Knox City PMC, was best and Osage was the poorest. Other cultivars included in the test were 'Rumsey' and 'Cheyenne'.

'Rountree' big bluestem, a 1983 release from the Elsberry PMC, was compared to 'Kaw' in 10 field planting. In half of these plantings, failure to obtain a stand was reported. All successful plantings were rated as "fair" or "poor." Rountree appeared to be slightly better than Kaw in the Ozark area, but no tendency for it to be better could be detected elsewhere.

In all of the native grass plantings, the cultivars were planted in pure stands to determine the superior species and cultivar. The only species that was successful was switchgrass, and the cultivar, Alamo, was generally best. No attempt to plant these in mixtures, as one encounters in native prairies, was attempted. Cooperators being unfamiliar with these species was one reason for poor performance; a major problem was lack of equipment to sow the "fluffy" seeds of big bluestem and Indiangrass. Overgrazing was also a problem since most cooperators had only had experience with bahia, bermuda, and fescue which could be grazed more closely. Old World bluestems, such as 'Caucasian', 'Plains', and others, have also been tried in northern Arkansas and are generally preferred to the native species because they develop good stands faster and are more tolerant of close grazing. Nevertheless, native grasses when properly managed are high producers of good quality forage. The PMC at Booneville, Arkansas, is currently working to develop better varieties and techniques to manage native grasses for northwest Arkansas.

Plantings for Improvement of Wildlife Habitat

Numerous plantings of 'Sabine' Illinois bundleflower (*Desmanthus illinoenis*), and 'Eldorado' Englemanndaisy (*Englemannia pinnatifida*) from the Knox City PMC and American jointvetch (*Aeschynomene americana*, PI-421680) and teosinte (*Zea mexicana*, PI-422162) from Brooksville were evaluated in Arkansas, Louisiana, and Mississippi from 1980 to 1991. Teosinte and American jointvetch performed well in Louisiana and southern Mississippi, but generally frost prevented seed maturity farther north. Plantings of Englemanndaisy were almost all regarded to be complete failures. The Illinois bundleflower grew well in neutral or alkaline soils, especially in the Blackland Prairie where it occurred naturally, but its value for wildlife was questionable. Performance of all of these species was mediocre when compared to 'Quail Haven' soybean (*Glycine soja)* and other legumes, including bicolor (*Lespedeza bicolor*), sericea, and 'Amquail' Thunberg lespedeza (*L. thunbergii*), commonly use for wildlife in Arkansas, Louisiana, and Mississippi.

For many years after its establishment in 1960, the Coffeeville PMC primarily served the Delta States of Arkansas, Louisiana, and Mississippi, and the Plant Materials Program for the three states was closely tied to activities at that center. Therefore, the report of "Field Activities in Arkansas, Louisiana, and Mississippi" was included with the "Report of Activities" for the Coffeeville PMC. Now that each of the three states has its own PMC, the Plant Materials Program for each of the Delta States revolves around the PMC in that state. For this reason, the section on "Field Activities in Arkansas, Louisiana, and Mississippi" will no longer be included in the annual report for the Jamie L. Whitten PMC.

MATERIALS AVAILABLE FOR COMMERCIAL INCREASE

Information about commercial production of SCS released cultivars may be obtained through any office of the SCS. Releases from the Coffeeville PMC that are available are:

'Quail Haven' Reseeding Soybean

This plant was released for wildlife in 1986. It is a vining annual legume that produces an abundance of small seeds that are eaten by quail and dove. It has many hard seeds that remain on the soil throughout the winter and germinate the following spring. The plants may also be used for hay and as summer cover for soil improvement.

'Meechee' Arrowleaf Clover

This is an annual legume that is a high producer of quality forage in spring and early summer. It may also be used as a cool-season cover crop.

'Chiwapa' Japanese Millet

This plant was released for wetland wildlife by the Coffeeville PMC because of its ability to withstand flooding. It may be sowed on mud flats in the summer and flooded to provide food for waterfowl. It also produces an abundance of foliage that can be utilized by livestock.

'Halifax' Maidencane

This grass does not produce seeds so it is established from coarse rhizomes. It is an excellent plant for stabilization of stream and lake banks.

Seeds of all of the above except 'Halifax' maidencane are available for certified seed production from:

Foundation Seed Stock
Mississippi State University
P. O. Box 5267
Mississippi State, MS 39762

Those interested in production of 'Halifax' maidencane or other SCS releases may also contact the Jamie L. Whitten PMC.

TECHNICAL PAPERS WRITTEN IN 1991

Coffeeville Plant Materials Center. Technical Notes.

No. 1. Response of Selected Plant Accessions to Common Herbicides (1990).

No. 2. Seed Production and Variation among Selected Partridgepea Accessions.

Copies of this and other reports may be obtained from:

Jamie L. Whitten Plant Materials Center
Route 3, Box 215A
Coffeeville, MS 38922

U.S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

LEGEND

- STATE BOUNDARY
- PMC SERVICE AREA BOUNDARY
- MLRA BOUNDARY

MAJOR LAND RESOURCE AREAS

- 131 Southern Mississippi Valley Alluvium
- 133A Southern Coastal Plain
- 134 Southern Mississippi Valley Silty Uplands
- 135 Alabama, Mississippi and Arkansas Blackland Prairie

COFFEEVILLE PLANT MATERIALS CENTER SERVICE AREA

0 100 200 MILES

SOURCE
PLANT MATERIALS CENTER BOUNDARY DERIVED BY SCS FIELD TECHNICIANS
DIGITIZED FROM SCS BASE 1000303-05 DATED SEPTEMBER 1988
MAP COMPILED USING AUTOMATED MAP CONSTRUCTION WITH THE
FOCAS EQUIPMENT NATIONAL CARTOGRAPHIC CENTER
FORT WORTH, TEXAS 1990.

FEBRUARY 1990 1005100

USDA SCS NATIONAL CARTOGRAPHIC CENTER FT WORTH TX 1990

Location

The Coffeeville Plant Materials Center is located in north-central Mississippi within the Holly Springs National Forest about 6 miles west of the town of Coffeeville. To visit the Center, one may take the Tillatoba exit off Interstate 55 and travel 4.5 miles east on Mississippi Highway 330.